Assignment-1

Addition Problems

1. **Sum of Two Numbers**
   - Write a program to take two integers a and b as input and calculate their sum.
   - **Expression**: sum = a + b

2. **Sum of Three Numbers**
   - Write a program to take three integers a, b, and c as input and calculate their sum.
   - **Expression**: sum = a + b + c

Subtraction Problems

1. **Difference of Two Numbers**
   - Write a program to take two integers a and b as input and calculate their difference (a - b).
   - **Expression**: difference = a - b
2. **Difference of Three Numbers**
   - Write a program to take three integers a, b, and c as input and calculate the result of subtracting b and c from a.
   - **Expression**: result = a - b – c

Multiplication Problems

1. **Product of Two Numbers**
   - Write a program to take two integers a and b as input and calculate their product. ○ **Expression**: product = a * b
2. **Product of Three Numbers**
   - Write a program to take three integers a, b, and c as input and calculate their product.
   - **Expression**: product = a * b * c

Division Problems

1. **Quotient of Two Numbers**
   - Write a program to take two integers a and b as input and calculate the quotient of a divided by b. ○ **Expression**: quotient = a / b (consider both integer division and floating-point division)
2. **Division Result of Three Numbers**
   - Write a program to take three integers a, b, and c as input and calculate the result of dividing a by b and then by c.
   - **Expression**: result = a / b / c (consider both integer division and floating-point division)

Combined Problems

1. **Mixed Operations with Two Numbers**
   - Write a program to take two integers a and b as input and calculate the sum, difference, product, and quotient.
   - **Expressions**:
     - sum = a + b
     - difference = a - b
     - product = a * b
     - quotient = a / b (consider both integer division and floating-point division)
2. **Mixed Operations with Three Numbers**
   - Write a program to take three integers a, b, and c as input and calculate the sum, difference, product, and result of dividing the sum of a and b by c.
   - **Expressions**:

- sum = a + b + c
- difference = a - b - c
- product = a * b * c
- result = (a + b) / c (consider both integer division and floating-point division)

Area Problems

1. **Rectangle**
   - Write a program to take the length l and width w of a rectangle as input and calculate its area.
   - **Expression**: area = l * w
2. **Triangle**
   - Write a program to take the base b and height h of a triangle as input and calculate its area.
   - **Expression**: area = 0.5 * b * h
3. **Circle**
   - Write a program to take the radius r of a circle as input and calculate its area.
   - **Expression**: area = 3.14 * r * r (use $\pi \approx 3.14$)
4. **Trapezoid**
   - Write a program to take the lengths of the two bases a and b, and height h of a trapezoid as input and calculate its area.
   - **Expression**: area = 0.5 * (a + b) * h
5. **Parallelogram**
   - Write a program to take the base b and height h of a parallelogram as input and calculate its area.
   - **Expression**: area = b * h

Volume Problems

1. **Cuboid**
   - Write a program to take the length l, width w, and height h of a cuboid as input and calculate its volume.
   - **Expression**: volume = l * w * h
2. **Cube**
   - Write a program to take the side length a of a cube as input and calculate its volume.
   - **Expression**: volume = a * a * a
3. **Cylinder**
   - Write a program to take the radius r and height h of a cylinder as input and calculate its volume.
   - **Expression**: volume = 3.14 * r * r * h (use $\pi \approx 3.14$)
4. **Sphere**
   - Write a program to take the radius r of a sphere as input and calculate its volume.
   - **Expression**: volume = (4.0 / 3.0) * 3.14 * r * r * r (use $\pi \approx 3.14$)
5. **Cone**
   - Write a program to take the radius r and height h of a cone as input and calculate its volume.
   - **Expression**: volume = (1.0 / 3.0) * 3.14 * r * r * h (use $\pi \approx 3.14$)

Combined Problems

1. **Surface Area and Volume of a Cylinder**
   - Write a program to take the radius r and height h of a cylinder as input and calculate both its surface area and volume.
   - **Expressions**:
     - surface_area = 2 * 3.14 * r * (r + h) (use $\pi \approx 3.14$)

- volume = 3.14 * r * r * h

2. **Surface Area and Volume of a Sphere**
   - Write a program to take the radius r of a sphere as input and calculate both its surface area and volume.
   - **Expressions**:
     surface_area = 4 * 3.14 * r * r (use π ≈3.14) volume = (4.0 / 3.0) * 3.14 * r * r * r

Problem Statement

You are required to write a C program that calculates the grade for a student based on their score in a course. The grading scheme is as follows:

- **A:** 90 to 100
- **B:** 80 to 89
- **C:** 70 to 79
- **D:** 60 to 69
- **F:** Below 60

The program should:

1. Prompt the user to enter a score (an integer between 0 and 100).
2. Determine the grade based on the score using the given grading scheme.
3. Print the grade to the console.

Constraints:

- The input score will be a valid integer between 0 and 100.

Example:

- Input: 85
- Output: B

- If y is less than 0, print Below Zero.
- If y is between 0 and 10 inclusive, print Small Number.
- If y is between 11 and 50 inclusive, print Medium Number.
- If y is greater than 50, print Large Number.

- If x is negative, print Negative.
- If x is zero, print Zero.
- If x is positive and less than 10, print Single Digit.
- If x is positive and greater than or equal to 10, print Double Digit or More.